

WHAT IS CLAIMED IS:

1. A belt transmission apparatus comprising:

a rotating electric machine pulley of a rotating electric machine for transmitting starting power to an engine;

an engine pulley for transmitting the starting power to said engine and also transmitting a rotation power of said engine to an accessory;

an auxiliary pulley being driven to rotate by the power from said engine pulley thereby to drive said accessory;

a belt wrapped around said rotating electric machine pulley, said engine pulley and said auxiliary pulley in succession; and

a belt tension adjuster for urging said belt so as to set a tension of said belt in a plurality of stages,

wherein said tension adjuster acts to adjust the tension of the belt in such a manner that the belt tension is set to be greater when said engine is started by said rotating electric machine than when said accessory is driven to operate after said engine has been started.

2. The belt transmission apparatus according to claim 1, wherein said tension adjuster is disposed in an area in which a slack of said belt occurring when said engine is started by said rotating electric machine becomes the greatest.

3. The belt transmission apparatus according to claim 1, wherein said tension adjuster comprises:

a pulley unit around which said belt is wrapped whereby to rotate in accordance with movement of said belt; and

an automatic belt tensioner for urging said pulley unit to push said belt through said pulley unit.

4. The belt transmission apparatus according to claim 3, wherein said automatic belt tensioner comprises:

an elastically deformable spring; a push rod for urging said pulley unit with a reactive force generated upon elastic deformation of said spring; and

an elastic deformation unit for elastically deforming said spring.

5. The belt transmission apparatus according to claim 4, wherein said elastic deformation unit comprises:

an electromagnetic coil; and

a movable electromagnetic core adapted to be attracted by an electromagnetic attraction force developed upon energization of said electromagnetic coil thereby to push said spring.

6. The belt transmission apparatus according to claim 4, wherein said elastic deformation unit comprises:

an electromagnetic coil;

a spool adapted to be moved by an electromagnetic attraction force developed upon energization of said electromagnetic coil;

a cylindrical housing having a fluid chamber into which pressure fluid is caused to flow in accordance with movement of said spool; and

a piston adapted to be moved to push said spring in accordance with an increasing pressure in said fluid chamber.

7. The belt transmission apparatus according to claim 4, wherein said elastic deformation unit comprises:

a wax housing having a diaphragm chamber defined therein by a diaphragm and filled with a wax;

a heater unit mounted on said wax housing and adapted to generate heat when energized; and

a piston adapted to push said spring in accordance with an expansion of said wax heated by the heat generated by said heater unit.

8. The belt transmission apparatus according to claim 4, wherein said elastic deformation unit comprises:

an electric motor;

a screw type position adjustment shaft adapted to be rotated by torque of said electric motor transmitted thereto; and

a screw type movable disk adapted to be moved in an axial direction to push said spring in accordance with rotation of said screw type position adjustment shaft.

9. The belt transmission apparatus according to claim 4, further comprising a housing having said spring accommodated therein with a viscous fluid filled therein.

10. The belt transmission apparatus according to claim 1, wherein said engine comprises a vehicular engine.

11. The belt transmission apparatus according to claim 10, wherein the position of said push rod is set by a signal from a central processing unit which processes information comprising, at least, an rpm of said engine, an engine starting signal, a vehicle speed, and the tension of said belt.

12. The belt transmission apparatus according to claim 1, wherein said rotating electric machine comprises a starter motor.

13. The belt transmission apparatus according to claim 1, wherein said rotating electric machine comprises a motor generator.